

GP-302997

ADJOINT-BASED GRADIENT DRIVEN METHOD FOR IDENTIFYING
UNKNOWN PARAMETERS OF NON-LINEAR SYSTEM MODELS

ABSTRACT OF THE DISCLOSURE

A method is provided for identifying the unknown parameters of a non-linear dynamic system model that has one or more system inputs. The governing state equation is derived from the non-linear dynamic system model. An adjoint equation is determined from the governing state equation, and a perturbation cost function is determined, based at least in part on the determined adjoint equation. Changes in the perturbation cost function that result from incremental changes in one or more of the system inputs and from arbitrarily chosen values of one or more of the unknown model parameters are iteratively determined to thereby identify the unknown model parameters.